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ABSTRACT

This document presents 28 accepted principles for modifying instruction to better meet needs of handicapped and at risk students. The principles include, among others: get to know the individual student in an informal manner; examine the patterns of children's errors; sequence skills to reduce error rates; vary response, testing, and grading options; include study skills in the curriculum; use structured presentation tactics; supplement classroom management plans with specific prevention-oriented techniques; go beyond standardized tests; relate written symbolism to what children already know; ensure overlearning of basic skills; and utilize parents as an instructional resource. Eight models for adapting and modifying curricula are also presented. Main model characteristics and originators are: a five-step process (John Hoover); a 3x3 table to organize adaptation (S. B. Cohen); interactive units (John Cawley); focus on three basic topics (R. A. Lambie); provision of an underlying organizational framework (C. O. Cheney); TTMME (Task, Time, Method, Material, Evaluation) by J. Scourfield, secondary school considerations (Colleen Blankenship); and modification of materials for mainstreamed students (J. Burnette). A checklist to help teachers prioritize the instructional principles is appended. Includes 57 references. (DB)

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GENERIC CONSIDERATIONS IN ADJUSTING CURRICULUM AND INSTRUCTION FOR AT RISK STUDENTS

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prepared for

Lucerne Valley Unified School District
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March 1992

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PREPARATORY QUOTES

You make a great, a very great mistake, if you think psychology, being the science of the mind's laws, is something from which you can deduce definite programs and schemes and methods of instruction for immediate classroom use. Psychology is a science, and teaching is an art; and sciences never generate arts directly out of themselves. An intermediary inventive mind must make the application by using its originality.

William James
Talks to Teachers on Psychology (1899)

In psychology as in physics there are no pure "facts", if by "facts" are meant phenomena presented nakedly to the mind by nature itself, independent respectively of hypotheses by means of which the mind examines them, of principles governing the interpretation of experience, and of the systematic framework of existing judgments into which the observer pigeon-holes every new observation.

Jean Piaget
The Child's Conception of the World (1929)

There is simply no single effective educational treatment ... apparently, techniques that work in one setting with one group of students do not necessarily work in another setting with another group of students, even for the same teacher.

Thomas Good & Deborah Stipek
Individual Differences and the Common Curriculum (1983)

RATIONALE

(1) Education in America is in a mode of reform. Older, established practices and views are giving way to newer, more functional ones: Those that make for better education for more children.

Of these reform efforts, one in particular needs to be highlighted as possessing major value for students with whom the standard curriculum and the standard teaching methods have shown limited success.

This effort is intervention, meaning specific "things to do" when students experience learning or behavior problems at school. It means active involvement of educational professionals, and parents, to devise solutions for such problems.

Mostly these solutions would not include classification of deficit or deficiency, special program eligibility, medical or neurological information, or diagnosis of weaknesses in a basic learning process.

Mostly these solutions would include adjustments to curriculum materials, choice of teaching methods effective for any student experiencing difficulty, colleague consultation and team or group problem solving, systematic observations, review of work samples, or maintenance of high standards for achievement for all students. Parent involvement in the sense of "parents as tutors" is an additional consideration.

For the important procedures of adjusting curriculum and instruction for students who learn poorly in the standard way, there does not appear to be an available source of practical information. Hence, a systematic literature review was conducted in order to identify the basic principles involved.

(2) Generating solutions for educational problems is best done using a base of general principles. This is like in baseball or playing a musical instrument, where overlearning of fundamentals allows the player or musician to easily meet unique, special, challenging events with creative solutions.

(3) Effective education reform initiatives require rather specific information and practical techniques to be made available to those who work closely with students. The information and practical techniques need to be functional in the real world of classrooms, daily student-teacher interactions, and the realities of the home environments within which children's out-of-school learning occurs.

The development of such specific information and practical

techniques can be guided by the availability of a checklist outlining the most important goals or desired outcomes: It functions as a map or chart showing the direction of most value for achieving the reform.

This is a necessary middle step between broad policy intentions, like "every student succeeds", and the most detailed "things to do" designed for a specific need. Generally, the most detailed "things to do" are best designed by individuals experienced with the areas involved (e.g., mathematics, reading, teaching strategies).

(4) Evidence is rapidly accumulating indicating that the "best practice" methods for solving school learning and behavior problems work equally well with most at risk students, independent of their special program affiliation: Special education, remedial services, compensatory (Chapter 1) education, or the tutorial learning laboratory.

These methods can be learned and applied by a variety of educational professionals. They are particularly useful for classroom teachers needing assistance in providing for the unique learning needs of mainstreamed special education students.

In summary, the motivation for this report is based upon:

o An effort, in line with current education reform initiatives, to create or identify experience- or research-based interventions, or "things to do", for those who work with at risk students.

o A belief that creating interventions for at risk students is best done beginning with fundamental or basic principles. Once these are mastered, generating creative solutions for children's learning and behavior problems becomes so much easier.

o A need for a systematic literature review over the theme of adjusting curriculum and instruction, which is designed to identify the basic principles involved.

o A need to aggrandize methods of adjusting curriculum and instruction which help to teach the core curriculum, or the basic goals of education, to all students in the classroom, if at all possible.

o Many current reform movements are rather vague and unsubstantial as to the details of meeting their desirable goals or outcomes. Education practitioners, and parents, require specific information and techniques in order to be successful with at risk students.

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INTRODUCTION

The term adjusting may be defined as what is done to make something fit by alteration, to make something more suitable, to adapt to new circumstances, to modify, or to otherwise change, mold, or conform something to make it more desirable. To pin down the idea, consider these verb synonyms:

- o harmonizing
- o agreeing
- o fitting
- o matching
- o equating
- o resolving
- o equalizing
- o balancing
- o leveling
- o regulating

All of these terms imply that (a) you know there are deficiencies in what you have, and (b) you know what you would like to have as the end result of the adjusting process. In short, the verb synonyms apply only when adjustments to common practice are deemed necessary, and a desirable goal is known.

The target focus of this report is on fundamentals. To be sure, it would not be possible to produce a complete listing of ways that teaching methods or curriculum materials could be adjusted for students who do not learn well under standard, typical instruction, or with the standard, typical curriculum. This would be an impossible undertaking.

However, in surveying a wide range of such adjustments, it quickly became evident that there existed a relatively limited number of such modifications that may be considered "fundamental" or "generic". These have been repeated over and over, and stated in various ways, for a large number of years.

Consequently, it was possible to collate these major recommendations into an outline listing of key adjustments. These are meant only to be a current determination of the major ways in which teaching and curriculum might be changed in order to accommodate students who do not learn well in the normal way.

Such students might be termed "at risk" or "high risk". These phrases refer to those pupils, of any age or grade level, who for various reasons are close to, or well within, a range of consideration for being:

- o in possible need of special education services

- o ones who have experienced significant academic frustration or failure
- o ones who have not shown reasonable learning progress when taught in the usual way
- o students with low levels of motivation and limited interest in school
- o students who have had behavior problems at school, perhaps including numerous absences or disciplinary referrals
- o potential high school drop-outs

In summary, "at risk" or "high risk" refers to those students who's behavior indicates a large probability of academic failure, and, hence, likely lack of success in after-school life.

ADAPTIVE INSTRUCTION AND CURRICULUM MODIFICATION

These two ideas are opposite sides of the same coin. When confronted with students who are making poor progress in learning, it is possible to approach the problem in two basic ways: Change the teaching strategies or change the curriculum: Alter how you teach or alter what you teach.

As regards the first of these ways, consider this definition (Wang, Renyolds, & Schwartz, 1988):

> Adaptive instruction refers to educational interventions that are aimed at accommodating the unique learning needs of individual students and enhancing each student's ability to develop knowledge and skills for mastering learning tasks (p. 201).

In general, "whole class instruction geared to the average student is bound to be too difficult for some learners and too easy for others" (p. 201).

In adapting instruction, variety is the key. The specifics of teaching strategies and teaching goals are unique to each classroom. Characteristic here is adapting instruction in ways that best suit an individual teacher, class, or student.

Indeed, after Wang et al. (1988) had studied in great detail a wide variety of effective methods for adapting instruction, they concluded that universally the effective methods could be described as follows:

> No <u>single feature</u> seemed to distinguish effective from less effective programs. Instead it was the combination and coordination of <u>several features</u> in carefully implemented programs that appeared to produce a wide variety of positive outcomes (p. 204).

As regards these "several features", seven <u>common features</u> were seen over and over as highly related to both gains in student achievement and gains in student self-esteem and motivation:

1. Instruction that is based on the assessed capabilities of each student.

2. Materials and procedures that permit each student to make progress in mastering instructional content at a pace suited to his or her abilities or interests.

3. Periodic evaluations of student progress that serve to inform individual students of their mastery.

4. Students' assumption of responsibility for planning, monitoring, and evaluating their learning and mastery.

5. Availability of alternative activities and materials that help students efficiently and effectively acquire academic skills and content.

6. Individual student choice of educational goals, expected outcomes, and activities.

7. Student cooperation and assistance in pursuing individual goals and in achieving group goals.

Curriculum modification is the other side of the coin. Ideally, the curriculum would be modified, for those students requiring it, in such a way that would allow for the maintenance of a school district's core educational goals, those that all students are expected to master, and, as well, completion of the prescribed learning program. Comfort (1990) has expressed the basic concept:

> Interpreting a school's formal curriculum by teachers into learning objectives and units of learning activities judged most reasonable for individual learners ... broader statements of what students are expected to learn are translated into specific learnings ... the idea behind curriculum modification is that teachers do not serve merely as instructional technicians rigidly implementing a highly detailed curriculum as it has been given to them (p. 397).

As with adaptive instruction here, too, variety is the key: "Given that diversity is a hallmark characteristic of any classroom group, a systematic curriculum intended to define specifically and completely what is to be learned ... is inherently inadequate" (Comfort, 1990, p. 401).

Both of these ideas -- adapting instruction and modifying curriculum -- are about setting priorities, are about making judgments. The ideas also involve utilization of already available materials, an important consideration in times of limited funds and resources. And, lastly, the ideas become real through a teachers "skill in translating more general curriculum frameworks into practical curriculum and instructional decisions" (Comfort, p. 404).

This report will end with eight example formats for adapting instruction and modifying curriculum. These formats allow instructors to generate individualized solutions to student learning problems, and are useful as methods for meeting any unique learning need.

GENERIC CONSIDERATIONS IN ADAPTING INSTRUCTION AND MODIFYING CURRICULUM

The research- and experienced-based considerations listed on the following pages were freely excerpted from the sources as listed in the references. These sources include literature from different but related educational concern areas: Special education, compensatory (Chapter 1) and remedial education, curriculum reform, effective teaching, and individualized instruction.

The ideas are a compilation of those that have been consistently cited, throughout and across, the literature from the various educational concern areas. Hence they have strong consensus value as the major ways in which changes in standard practice could be implemented to meet the needs of at risk students.

The ideas were purposely kept generic and fundamental. They might be termed general principles, which are guidelines that point educators in productive directions, towards desired outcomes, yet stop short of explicit advice.

The examples appended to each general principle get closer to being prescriptions, or detailed statements about effective practice. In this report though, they serve only as samples, illustrating their respective main headings. As well, these samples give definition to the general principles -- definition by example -- and serve this purpose instead of a separate description.

(1) GET TO KNOW THE INDIVIDUAL CHILD IN AN INFORMAL MANNER.

- o each child is different from other children
- o each child does unusual things
- o each child displays a unique pattern of strengths and weaknesses
- o sometimes a child's mistakes can be awesome
- o get to know what they are really up to; children are continually engaged in attempts to make sense of their world, quite often by looking for an underlying pattern, a deeper meaning -- they are naturally curious
- o children possess unsuspected or hidden strengths
- o children can invent unique strategies or nonstandard means of problem solving, and find them comfortable
- o children can and do learn in apparently adverse circumstances, such as chaotic and confusing home environments
- o individual children show unusual combinations of skills: effective approaches and bizarre procedures

(2) MUCH CAN BE LEARNED BY EXAMINING THE PATTERNS OF CHILDREN'S MISTAKES.

- o errors fall into patterns, and almost never are random
- o errors result from organized strategies and rules
- o the faulty rules underlying errors have sensible origins (derived "illogically" from what has been taught: usually a distortion or misinterpretation of sound procedure)
- o errors are meaningful and informative
- o collection of errors over time will reveal error patterns
- o errors are not necessarily the result of carelessness or not knowing how to proceed
- o most errors are due to erroneous or incorrect strategies
- o errors are seldom trivial or meaningless; most often errors reflect serious attempts to understand, and are products of sensible approaches to a problem
- o side-by-side with mistakes there exist interesting and unexpected competencies
- o rule of thumb: mistakes are based on rules

(3) ENCOURAGE WHATEVER FORM OF LEARNING SEEMS APPROPRIATE; DON'T GIVE UP ON THE CHILD, ABANDON THE METHOD.

- o concrete or abstract
- o rigidly organized or relatively unstructured
- o direct, teacher-guided instruction or learn by observation
- o telling & listening or learn by manipulation
- o memory quick and easy or use memory aides
- o independent seatwork or need for "game like"
- o observe-question-imitate or experiment-think-create
- o quiet/isolated, involved/social, early morning/later day
- o frequent breaks or OK for long stretches
- o children can learn in many ways: drill, from lectures, reading textbooks, from observing models, from manipulating real things, from contemplating abstract ideas; children memorize, listen, observe, imitate, respond, experiment, think
- o children have managed to learn, and prefer to learn, under an enormous range of circumstances
- o students could have a collection of strategies to use in problem solving:
  - make a model
  - draw a picture
  - organize information in a table
  - act out the situation
  - restate the problem
  - look for and identify patterns
  - guess and check the result
- o different forms of learning may be appropriate under various circumstances
- o stress the value of estimating or guessing, and of mistakes

(4) MOTIVATION IS ALWAYS A FOUNDATION CONSIDERATION.

- o include novelty and variety in lessons
- o incorporate game-like features into exercises
- o minimize performance anxiety
- o induce curiosity or suspense
- o model, model, model: student's scrutinize their teachers carefully, especially their interest and enthusiasm
- o help students to set realistic learning goals: near rather than far, specific rather than global, challenging rather than too easy or too difficult
- o attribution retraining: show the relationship between effort and outcome
- o consistently attach positive reinforcement to success
- o allow student choice whenever possible
- o post/public display the student's best work
- o allow students to grade themselves, from time to time
- o intersperse divergent questions: these allow expression of opinion, making pedictions, evaluating solutions
- o encourage self-directed learning when you see it
- o the three basics of motivation seem to be achieving success, receiving feedback, and personal involvement in the learning process
- o adapt assignments to student's interests, incorporate content that students find interesting
- o set up assignments so that students can create finished products
- o provide opportunities for students to respond actively, by doing something other than just listening and reading
- o provide opportunities to interact with peers, for example by scheduled discussions, role-plays, or simulations
- o push their boundaries: strive for higher-level thinking by asking why and expect coherent responses

(5) SEQUENCING SKILLS REDUCES STUDENT ERROR RATES.

- o preskills of a strategy are taught before the strategy itself
- o instances that are consistent with the strategy are introduced before exceptions
- o high utility skills are introduced before less useful ones
- o easy skills are taught before more difficult ones
- o strategies likely to be confused are not introduced at the same time
- o a structured method for sequencing sub-skills helps to highlight the relationship between pre-skills and the teaching goal; such a method is the lattice (Minnesota Department of Education, ND), for instance illustrated by the steps to teach decoding of -ed words:

Entry Level Skills

1. Discriminate letters.
2. Discriminate sounds.
3. Read the words included in the list.
4. Define a suffix.

Sub-goal #1

When given a list of -ed words the student will circle those having the "t" sound with 95% accuracy (examples: wiped, fixed).

Sub-goal #2

When given a list of -ed words the student will circle those having the "ed" sound with 95% accuracy (examples: started, wanted).

Sub-goal #3

When given a list of -ed words the student will circle those having the "d" sound with 95% accuracy (examples: played, used).

Teaching Goal

When given a list of -ed words the student will read the words with 95% accuracy in a flash presentation.

(6) SIX BASIC REMEDIAL INSTRUCTION IDEAS (Carnine, 1990).

- o extra instruction: the more deficient a student is the greater the amount of instruction the student should receive
- o early remediation: the sooner the remediation begins, the more likely the student can be helped
- o careful instruction: the more severe the student's deficit, the more careful the instruction must be
- o instructionally sound materials: the greater the student's deficit, the more the student will benefit from a well-designed program that teaches essential skills
- o rapid progression: the more deficient a student is in basic skills, the more quickly he or she must progress through the program
- o motivation: the more highly motivated a remedial student is, the greater the student's progress and success

(7) VARY RESPONSE OPTIONS.

- o cut out magazine pictures and label
- o perform an experiment, create an exhibit
- o conduct a survey
- o audio-tape the response
- o write a story, write a letter
- o prepare an outline
- o draw and label a plan or a map
- o read food can labels, cereal boxes, appliance instructions
- o make a visit and give an oral report
- o interview a person, pre-list questions
- o outline a lesson plan
- o take photographs and label or describe them
- o write a report in code with the decoding key attached
- o "headlines" for "front page stories"
- o flannel board stories (felt letters), oral presentation
- o give a "radio broadcast", describing exciting scenes from books read or listened to
- o discuss a story with a friend, friend then gives a summary of the discussion
- o create methods for students to show improvement, like by labeling weekly handwriting samples good, better, best

(8) VARY TESTING OPTIONS.

- o allow the student to be responsible for part of a test
- o give many smaller tests rather than one longer one
- o make the first questions easier so the student is not quickly discouraged
- o "test" on completion of contracts and independent assignments
- o given open book tests: these approximate the real life ability to locate information in a manual
- o longer tests for more capable students
- o involve students in making up the test
- o underline important verbs in directions (choose)
- o give the test orally to students with low reading levels
- o allow extended time as an aide to encourage quality in the student's response
- o include easier "bonus questions" for less able students
- o provide partial credit for legibility
- o devise multiple choice tests so that the choices are clearly different
- o when reviewing the test look for error patterns, those the student makes over and over
- o emphasize "authentic assessment" when possible: direct measures of what the student was expected to learn, as for example by work samples or work portfolios, demonstrations, experiments or studies done at home, or correct spelling done in the context of a written story or essay
- o for essay tests allow some substitution of diagrams or outlines for paragraphs
- o test individually in a low distraction setting, or in compatible small groups

(9) VARY GRADING OPTIONS.

- o grade for improvement
- o allow self-evaluation, request documentation
- o group projects with group grades
- o letter to parents emphasizing "good report"
- o choose quality over quantity (accuracy emphasized)
- o give opportunities for extra credit
- o grade for attendance, punctuality, class cooperation, or meeting verbal or written contracts
- o ample options for extra credit, layered by level of difficulty
- o grade for long term projects that students can seek help with
- o grade quickly, preferably with the student present
- o grade the final product, allow drafts and emphasize stages towards meeting the goal
- o if the submitted work seems hopeless, throw out the work and re-teach
- o give credits for abler students helping less able
- o on a given topic, provide a list of several assignment options of varying levels of difficulty

(10) INCREASE OPPORTUNITY TO LEARN AND ACTIVE INVOLVEMENT.

- o consistently create a high ratio of success
- o develop, teach, and practice step-by-step procedures for activity shifts
- o use brief verbal cues, avoid lengthy instructions
- o schedule preferred activities immediately after less preferred ones
- o have students write, repeat, or paraphrase task directions
- o break down assignments into small segments
- o use brisk, fast-paced instruction and practice
- o choral responding or group responding
- o students self-correct their own work, or peers correct
- o schedule short time blocks for individualized practice
- o make time adjustments and reduce time pressure through allowing more time, a shortened assignment, a different time
- o set the pace of instruction to balance the most content covered with sufficient time available to absorb and master the material
- o "opportunity to respond and achieve" is a key concept:
    - students have limited opportunity to respond when those things done before the response is required (like materials presented, prompts, questions asked) are not successful
    - more opportunity then needs to be provided by using other methods so the student does, in fact, make the desired response
    - examples: when the teacher began restating questions, the students began to participate more in class discussions; when the teacher stretched wait time for a response from 5 to 15 seconds, the amount of student hand raising also increased
- o the absolute amount of "time on task" is not nearly as important as what is done with that time (e.g., time spent on material relevant to the assignment; students are not faking attention)

- o there are a variety of ways students can be aided in becoming <u>actively</u> <u>involved</u> in their learning:
  - student shares with a peer the guidelines for writing a complex sentence
  - students write two questions each to make up a quiz
  - students do "thumbs up" if they understand
  - students study vocabulary definitions alone for a while and then the teacher "spot checks"
  - preface a brief presentation with the statement, "I'll call on someone in about a minute"
  - say, "Write down three important ideas to share with the class"
- o write an assignment on the board for students to work on when they enter the room
- o rank student learning needs and assign high priorities as homework
- o frequent quizzes motivate a high level of concern and hence more frequent attention to detail and review of the material
- o use "change ups" frequently to increase attentiveness:
  - tell a joke
  - 30 seconds stretching
  - play a quick game
  - talk sometimes loud, sometimes soft
  - talk sometimes fast, sometimes slow

(11) MAKE USE OF ALTERNATIVE ACTIVITIES.

- o "support activities" (from teacher's guide) that will not be used by the entire class
- o "supplemental activities" (from teacher's guide), those used as adjuncts if time permits
- o use "suggested outside readings"
- o assign reading selections on the same general theme
- o contract with the student as to what part of the lesson can be done ($\frac{1}{2}$,$\frac{1}{4}$; part now, part later, etc.)
- o blend grade level with below grade level assignments
- o locate texts that approximate the content of the teaching unit but at a lower reading level
- o audio-tape portions of the text, perhaps also simplifying the language of the text, shortening sentence length, or explaining text vocabulary
- o use highlighting of the text, or any kind of coding or marking system to bring more structure to the page
- o color code or otherwise visually simplify workbook pages
- o use those methods for teaching the problem topic as outlined in a lower grade book (a less complex instructional activity)
- o when modifying materials consider the importance of format and organization (lots of spacing, avoid crowding, large type face, avoid cursive if possible, no light or fuzzy copies)
- o the relationship between the original and the alternative activities may be through common themes, types of characters, geographical location, or curricular topics
- o provide page numbers where answers may be found to accompany written or oral questions; students may use these if they wish
- o asterisk-code questions or assignments that students must know in order to earn a "C"
- o "flip-flop format" where by definitions are given first and students find the term that fits the definition
- o give a basic assignment to all students and a second more difficult part for extra credit

- o choose instructional activities that differ from the way the child was previously taught; these are often associated with fear and failure

- o try to choose alternative texts that favor the same instructional approach (e.g., sight words, manipulatives in math) and overlap in vocabulary with the core text

- o curriculum content which is secondary to the "core" may be:

    - complementary
    - supplementary
    - an expansion on specific topics
    - an intensification of specific topics
    - an emphasis on problem solving
    - an emphasis on practical application
    - a focus on skills ("core" focus on concepts)
    - a focus on concepts ("core" focus on skills)
    - taken from fun, game, or motivational-type projects

(12) ADJUST EXPECTATIONS FOR LOW ACHIEVING STUDENTS (Good, 1981).

- o allow more time for the student to respond to questions
- o avoid responding to incorrect responses by giving the student the answer or by calling on another student
- o avoid praising marginal or inaccurate responses
- o maintain high expectations for low achievers
- o attend (smiles, eye contact) equally to high and low achieving students
- o consistently give feedback for wrong responses, as accurate and detailed for all students
- o call on high and low achievers equally
- o allow equal opportunity for high and low achievers to respond
- o avoid seating low achievers at a distance
- o stay with low achievers in failure situations (examples: provide cues, ask follow-up questions)
- o avoid allowing high achievers to dominate in response opportunities
- o distribute praise equally among all pupils
- o the following suggestions address the need to restore the child's self-confidence, retrain attribution, and initiate motivation (Harris & Sipay, 1990):
  - make every effort to demonstrate to pupils that they are accepted and understood
  - structure the adjustment so that success occurs far more often than failure
  - help students learn to attribute success to their effort and ability
  - use both intrinsically interesting learning materials and extrinsic incentives
  - involve the children in determining their learning problem, planning their remedial program, and evaluating their learning progress

- provide learning assignments that students can accomplish with a high rate of success

- three very important teaching strategies for working with at risk students are: (a) provide positive and encouraging feedback, (b) a high success rate, and (c) lack of criticism

- approach at risk youngsters, especially those from poor homes, as though they are ready and able to learn, much as anyone else

- success is the key to achievement: try for 75% minimum correct answers to oral questions, and 90-100% correct for independent seatwork activities

(13) UTILIZE STRUCTURED PRESENTATION TACTICS (Reisberg, 1990).

- o begin presentations with a brief review of previously related information
- o include in each lesson a discussion of the objective, or what the student is expected to learn
- o begin lessons with an overview of the activities and aspects of the lesson
- o preview the presentation for a clear format leading to one and only one interpretation
- o preview the presentation for aspects that are uninteresting to students
- o always give a model with oral presentations
- o guide practice using prompts and feedback
- o provide concrete examples and experiences to students prior to requiring performance on abstract tasks
- o ask frequent and varied questions during presentation to test students' understanding
- o make corrections immediate, positive, and addressed to the group, modeling the correct response
- o have students obtain at least 90% mastery during guided practice before moving to independent practice
- o use sustaining/clarifying feedback (information a student needs in order to persist) and try to prompt, rephrase, or provide cues for incorrect responses
- o essential to working with at risk students in large groups would be (Larrivee, 1989):
  - provide positive and encouraging feedback to students responding to questions
  - give clarifying feedback when students answer incorrectly
  - ask questions during instruction that students can answer correctly
  - refrain from criticizing student responses
  - provide instructional materials and learning tasks that students can be actively engaged in at a low error rate (80% or more correct)

- o minimize student transitional or noninstructional time
- o provide a supportive classroom environment where the need for disciplinary interventions is low (less than six per hour)
- o minimal use of punative disciplinary interventions (less than five percent)

(14) INVOLVE STUDY SKILLS AS PART OF THE CURRICULUM.

- o periodically review the school's homework policy
- o break big tasks into sub-tasks and schedule each sub-task
- o provide a schedule/time management system for long-term assignments
- o assist students to focus on one task at a time
- o provide parents with a study skills inservice
- o create structured/pre-printed formats for taking notes
- o cue students to take notes on definitions and examples
- o utilize graphic organizers/concept maps for topic overviews
- o present structured study techniques like SQ3R (survey, ask questions, read, recite, review)
- o collate well written examples of school papers for student reference; include an outline of quality considerations
- o provide students with "neat paper rules" as a guide for a final copy of writing
- o teach students formal memory techniques
- o overview standard test-taking techniques, like SCORER: Schedule your time, Clue words, Omit difficult questions, Read carefully, Estimate your answer, Review
- o counseling interventions for test anxiety
- o teach methods for reviewing notes, like systematic flash cards, the two column method (key phrases left, details right), or concentration (like the game)
- o set up cooperative learning study groups, or have students pre-test each other

(15) INTRODUCE OR PREVIEW THE LESSON.

- o verbal overview, talk through the assignment
- o skim the text, familiarize the student with it
- o use "graphic organizers" or "visual webs"
- o decode and define technical terms
- o highlight main ideas or topics
- o create an "anticipatory set" by asking a question or offering a short demonstration
- o contract with parents to read selected paragraphs at home
- o when introducing a new skill or topic, do so using known basic facts
- o preteach vocabulary and preview major concepts
- o use an overhead projector copy of key pages in the text and color-code-highlight main points
- o use "framing" in a listening guide (example: The _____ War of 1776 involved protest against the policies of King _____ of England)
- o have students scan the material, read the topic headings, and write questions as to what they think the lesson is about
- o pre-corrections, by advising students about particularly confusing areas, help with difficult material
- o when students scan the assignment, write questions about the topic, and brainstorm answers that may be related to the topic, they begin to organize personal knowledge
- o assist students in setting reasonable goals for a lesson by using these guidelines (Woodward and Peters, 1983):
  - conceivable: the student must set goals that are clearly understandable
  - believable: the student must believe he or she can reach the goal
  - achievable: the goal must be accomplishable within the student's strengths and capabilities

- controlable: if the student's goal includes the involvement of anyone else, that person's permission should first be obtained

- measurable: the goal must be stated so that it can be assessed

- desirable: the goal should be something the student wants to do

- the student should set one goal at a time

- the goal should never be destructive to the student, to others, or to society

o transition by steps from preview into practice (Rosenshine & Stevens, 1986):

- begin a lesson with a short review of previous, prerequisite learning

- begin a lesson with a short statement of goals

- present new material in small steps, with student practice after each step

- give clear and detailed instructions and explanations

- provide a high level of active practice

- ask a large number of questions, check for student understanding, and obtain responses for all students

- guide students during initial practice

- provide systematic feedback and corrections

- provide explicit instruction and practice for seatwork exercises

(16) ARRANGE GROUP MEMBERSHIP, SIZE, AND PURPOSE ACCORDING TO STUDENT INTERESTS AND NEEDS.

- o "individualized instruction" which relies heavily on unsupervised independent seatwork, with students expected to learn mostly on their own, is not as effective as teacher-led, active, "direct" instruction

- o consider different kinds of small group arrangements (Lewis, 1971):

  - skill development small groups where students study the same objective

  - brainstorming small groups where the emphasis is on problem solving

  - the task small group where students form a committee to solve a specific problem

  - the workshop small group where students produce a product, like a mural or a report

  - the study small group for discussion and assignment assistance, or practice of learned study skills

  - the discursive small group which allows uninhibited discussion, can be useful for conflict resolution

- o rearrange the whole class into a small group format which emphasizes cooperative learning, like "groups of four", which produces extra teacher time since students within the groups try to answer questions on their own before approaching the teacher

- o group better students with those that are having difficulty -- this provides individual tutoring for the low students and review and enrichment for the higher students

- o pair students who have distinctly different strengths (good research skills/good art skills, reader/actor, expert/novice)

- o six key principles for small group instruction:

  - organize for sustained focus on the content

  - all students are actively involved

  - students receive equal opportunities to respond

  - students get clear feedback about the correctness of their performance

- skills are mastered to overlearning

- each individual student is closely monitored

o small groups of five students or less tend to be most effective for producing gains in learning, motivation, and student attitude

o the quality of direct, teacher-led instruction given to any within-class group is the foundation for the group's success

o the key alternative to traditional ability grouping (high, average, low) is to utilize that grouping arrangement that seems most appropriate and helpful to students' learning -- whole class, pairs, one-to-one, independent

o no one way of organizing the class serves all purposes equally well; various group activities may be used concurrently

o individualization of instruction can occur for any size group: one-to-one, small group, or large group; the appropriateness of instruction for student needs is the important consideration

o provide opportunities for low achieving students to participate in learning groups with other students who show a range of abilities (heterogeneous) as well as learning groups with students of a similar range of ability (homogeneous)

(17) PLAN DETAILS INTO SMALL GROUP INSTRUCTION TO AIDE COMPREHENSION.

- o scaffolding, or gradually releasing -- or adding, as needs be -- responsibility (support), by fading prompts, cues, explanations, modeling, guided practice, or other assists
- o ReQuest whereby teacher and student take turns asking one another questions about a text
- o KWL whereby students prepare "thinksheets" for reading which ask: What do I know? What do I want to know? What did I learn?
- o author's chair whereby students share journal entries, read from a content area textbook, share a rough draft for a story, and elicit peer comments
- o concept maps whereby visual displays of an idea (e.g., "communication") are visible during reading, listening, and discussing
- o DTRA (directed reading-thinking activity) whereby the student makes hypotheses about what will happen in a story, and then reads to confirm the predictions
- o focus journals whereby students write a brief comment in response to a "journal focus" question which varies daily
- o have available backup strategies for common problem areas, as for example (Wesson, 1989):

  to address reading fluency ...

  - imitative reading (tutor reads aloud while student follows along; student then reads the same passage)
  - echo reading (student reads aloud but lags behind teacher's reading by a split second)
  - repeated reading (teacher and student read passage aloud repeatedly until reaching a criterion of 85 to 100 words correct per minute)
  - paired reading (pairs of students take turns reading aloud to one another and help each other with decoding)
  - radio reading (student reads aloud but not word-for-word; the crux of the meaning is shared)
  - choral reading (passages are read aloud in unison)

to address reading comprehension ...

- cloze procedure (every 10th or 12th word is deleted; student "fills in the blank")

- directed reading (student peruses the story, studying titles, illustrations, subtitles, and then predicts what will happen in sections of the story)

- self-managed question responses (student stops after every sentence or paragraph and asks/answers who, what, where, when, why, how questions)

- matching activities (sentences written on paper strips, with one expressing the main idea of the paragraph; student assembles)

to address reading accuracy ...

- reducing omissions (teach the meaning of the omitted words; have the student identify them on tape-recording of the story)

- reducing substitutions (tape-record student reading; have the student listen and identify misread words)

- flash cards for errors (drill to mastery and then produce overlearning by reviewing mastered cards 3 days in a row)

- proofreading (student's job as "editor" is to identify omissions and substitutions in typed passages; peers can devise their own articles that need proofing)

o although the above ideas focus on reading, most are as well applicable to mathematics, especially word problems and the teaching of concepts

(18) SUPPLEMENT THE CLASSROOM MANAGEMENT PLAN WITH SPECIFIC POSITIVE, PREVENTION-ORIENTED TECHNIQUES.

- o promote and reward positive self-statements
- o in-room time out for "cool down"
- o happy grams, positive note home
- o in-class rewards (privileges, activities)
- o logical consequences
- o higher proportion of I-messages than You-messages
- o behavior specific praise (name the act)
- o arrange conditions so cheating is risky
- o cooperative groups, group reward
- o provide multiple, daily opportunities for success
- o mutual goal setting
- o nonverbal cues (touch, smile, nod) added to verbal praise
- o behavior contracts
- o present positive reinforcement more frequently than negative comments or actions in at least a 4:1 ratio
- o discuss misbehaviors privately with the student
- o when possible ignore misbehaviors, but do reinforce incompatible behaviors
- o present the same curriculum content to the class in a variety of ways
- o verbally rehearse and train the student for "high risk" situations (lunchroom, playground)
- o limit verbal interaction during negative encounters
- o positive attention to a well-behaved student (peer) immediately following negative attention for misbehavior
- o praise offending student immediately following positive attention to a well-behaved student
- o use peer influence -- other students help and encourage the at risk student

- o positive feelings from the teacher: "positive feeling tone"
- o arrange reasonable chances for success
- o deliberately create a "learner centered" classroom which supports children's needs to be active, to assume responsibility, to make choices, to be social, to feel accepted, confident, understood, and secure
- o give positive cues to appropriate behavior (i.e., tell the student what to do rather than what not to do)
- o allow students to participate in the wording of rules, and in developing reasons for the rules so they can understand them
- o emphasize specific, nonevaluative feedback for misbehavior, statements that clearly describe the misbehavior and its effects
- o "hurdle help", providing quick assistance with the assigned task as a means of decreasing student anxiety and frustration
- o both examples and non-examples of rules and procedures are used to help form the concept
- o monitor the physical environment to increase the learner's personal comfort level (Heimstra & Sisco, 1990):
    - adequate lighting, absence of glare
    - temperature adequate for the season of the year
    - adequate ventilation or air-conditioning
    - adequate table or writing space
    - adequate sturdiness for all furnishings
    - learners can see each other when seated in small groups
    - adjustable seats or alternative choices
    - adequate cushioning if used for long periods
    - provisions for standing as an alternative
    - sound level/acoustics not too harsh or distracting
    - decorations and wall visuals not too distracting

(19) CLEAR INSTRUCTION ("CLARITY") HELPS STUDENTS LEARN FASTER AND MORE SUCCESSFULLY (Evertson et al., Emmer et al., 1984).

- o stating goals or major objectives
- o telling students what they will be accountable for knowing or doing
- o emphasizing major ideas
- o reviewing key points at the end of the lesson
- o outlining the lesson sequence and sticking to it
- o holding back on complexities until the main idea is developed
- o summarizing previous points
- o clearly defining major transitions between ideas or topics
- o breaking complex content into manageable portions
- o giving step-by-step directions
- o checking for understanding before proceeding
- o maintaining an efficient pace in early learning
- o providing a variety of examples
- o defining new vocabulary terms
- o being specific, precise, referring to the concrete object
- o stating what is and what is not correct and why
- o asking questions and obtaining work samples to be sure students are ready to move on
- o asking students to summarize main points to verify comprehension
- o re-teaching unclear parts
- o checking everyone's understanding
- o being sure students have adequate practice
- o reviewing assignments to be sure all of the lesson's skills are reinforced

- checking work regularly, re-explaining needed concepts, re-teaching when appropriate
- displaying key concepts, new terms, major points on the overhead to underscore their importance
- presentations should be as focused and concrete as possible
- using examples, illustrations, demonstrations, physical props, charts or any means of providing substance and dimension to abstractions
- reinforcing oral with written directions, model and demonstrate procedural steps, remind and review as needed
- directions are repeated and stressed at difficult points

(20) BALANCE EMPHASIS TO BOTH BASIC AND ADVANCED SKILLS.

- o advanced skills include comprehension, problem solving, practical application, concept formation
- o direct instruction, in the form of structured, highly directed, teacher-led instruction with judicious use of research-based skills (e.g., frequent monitoring, active student involvement, clarifying feedback to incorrect answers, brisk pace, etc.) is the method of choice to teach basic skills, facts and procedures
- o direct instruction probably needs supplementing for effective teaching of more advanced skills (e.g., also use an inquiry or hypotheses formation approach)
- o at risk students probably will need direct training in using advanced skills taught in the classroom in out-of-school situations (i.e., generalization and transfer of learning needs to be taught directly)
- o at risk students usually benefit most from training, in addition to the advanced skill, which instructs them in (a) the usefulness of the strategy, and in (b) how to monitor and evaluate its effectiveness
- o in order to effectively use a strategy (e.g., a reading comprehension technique, using hypothesis generation in science) at risk students need also a firm knowledge base -- facts and definitions -- in the area
- o encourage both oral and written responses to questions designed to help students acquire and use higher-order skills
- o at risk and low achieving students learn advanced skills more effectively when:
  - information processing requirements are not burdensome
  - explanations are not elaborate or unusual
  - new curriculum is introduced gradually
  - "discovery or "inquiry" methods are balanced with direct instruction
  - teacher-guided instruction predominates
  - teaching is relatively structured and less permissive
  - there is balanced reliance on words along with other media (such as pictures, tables, charts)

- teaching is paced not too fast and not too slow

- use is made of clear demonstrations, models, and simulations

o introduce mathematical word problems from the first day of instruction; children probably will not figure out how to solve practical problems as they learn math facts and calculation

o introduce reading comprehension strategies from the first day of instruction; children probably will not spontaneously learn to comprehend as they learn to decode

o conventional wisdom regarding at risk students includes the following components which can lead to a lower quality remedial or compensatory program (Knapp & Turnbull, 1990):

(a) an emphasis on the learner's skill deficits

(b) a curriculum model which emphasizes sequential mastery of skills from "the basics" to higher order skills

(c) a high degree of teacher directed instruction

(d) an approach to classroom management built on general principles for maintaining order, and applied uniformly across content areas

(e) students grouped by perceived ability or skill level

o consider alternatives to conventional wisdom:

(a) build remedial efforts on student strengths; note that all students come to school with active minds and already-developed theories

(b) balance skill learning with appropriate novel and complex tasks from the earliest stages of learning; focus on meaning from the beginning: comprehending reading passages, communicating ideas in writing, understanding the concepts underlying number facts

(c) balance teacher-directed (e.g., six step lesson plan) and learner directed (e.g., mutual goal setting) instruction; encourage students to use each other as learning resources (peer tutoring, cooperative groups); teach explicitly the underlying thinking processes along with skills (example: say out loud the "thought steps" involved when interpreting a math story problem)

(d) teach students explicitly that noise levels, movement around the room, etc., can vary, and under what circumstances; project learning in application of learned facts and skills may not always be "neat"

(e) target individual help to low achieving students on an as needed basis rather than through long-term homogeneous grouping; integrate supplementary assistance, such as Chapter 1, as much as possible into mainstream classroom activities

- o when students learn more complex skills, give practice on previously learned skills at the same time
- o blend daily learning experiences which emphasize drill and memorization with interesting reinforcement activities will challenge students to use their newly developed basic skills
- o fact and skill drills can be kept short, and include some thought problems, informal timed tests, and games
- o students can try out their newly learned skills "on the job", by role playing a baker, pilot, gardener
- o a balanced program allows students to listen, speak, read, and write frequently
- o in all content areas it is the communication of meaning that is most important; details of style and convention can be best learned through doing -- writing paragraphs, reading stories or nonfiction, solving applied math problems
- o blending of a skills approach with a strategy approach should include as basics (Garcia & Pearson, 1990):
  - lots of modeling and demonstration of the skills so the students "see it to believe it"
  - use of "authentic" or "realistic" learning materials like good literature, newspaper articles, shopping finances
  - reducing complexity during strategy training, preferably through a combination of breaking the task down into smaller parts and "scaffolding" or gradually adding/ withdrawing support to the student through prompts and advice
  - including the student in the teaching and lesson content as much as possible

(21) GO BEYOND STANDARDIZED TESTS.

o standardized tests can misrepresent actual learning, for example:

- children can misunderstand test questions
- children can be distracted and under-motivated during group tests
- children acquire considerable knowledge and skills not measured by standardized tests: these are limited samples of all that is taught during a school year
- what standardized tests do measure is influenced by the test format (e.g., multiple choice) and so does not always correlate well with other, independent measures of the same skills (e.g., work samples)
- standardized tests tend to measure isolated skills, and not how well the student can utilize these skills for solving practical problems in the real world, the most important and desirable goal of schooling
- standardized test score profiles typically only provide vague characterizations: that a student does well, average, or poorly

o the most important alternative to the standardized test may be the informal interview, as for instance (Ginsberg, 1982):

(a) the adult poses for the child a specific problem

(b) the adult carefully observes the child's behavior

(c) the adult asks the child to think out loud while solving the problem

(d) the adult continually makes attempts to figure out the child's underlying strategy

(e) the adult tries to check this interpretation by giving a new problem, asking critical questions, making closer observations

(f) the adult treats each child as an individual, and tries to uncover his or her unique pattern of strengths or weaknesses

(g) the adult puts as first priority identifying what the child can do well; corrective teaching must build on this -- exploit the child's strengths

- o use daily or weekly charting of performance in the form of a bar or line graph

- o encourage self-appraisal by the pupil, involve him or her in the evaluation process

- o error profile analysis, collection of or noting mistakes over time, shows exactly with what the student is having difficulty

- o the best assessment is that which is curriculum-based and classroom-based:

    - monitoring students understanding during small group discussions

    - frequent individual student consultations

    - portfolios of work samples show growth over time

    - carefully planned questions which require students to go beyond yes or no answers

    - lists of a student's recreational reading measure attitudes and interests

    - quality of performance on homework assignments assesses use of basic skills

    - student self-assessments and peer-to-peer assessments save time and help students to learn evaluation and feedback skills

- o if students experience difficulty with reading or writing consider using calculators, computers, or manipulatives during assessment

- o base important evaluation on the convergence of information obtained from a variety of sources: observations, test scores, quality of homework, application of learned skills in practical problems, asking the student to give reasons for a chosen problem solution

(22) RELATE WRITTEN SYMBOLISM TO WHAT CHILDREN ALREADY KNOW.

- o symbols like letters, function words (e.g.: the, an, to), grammatical punctuation, abbreviations, numbers, and mathematical signs, are arbitrary representations of things and have no meaning of themselves
- o connect symbols to concrete objects, like "." to "stop sign"
- o relate formal terms like "equivalent" to children's natural ones like "same as"
- o interpret symbolism in terms of familiar ideas (example: teach "plus" with natural words like "put together"
- o teach comparatives like long, longer, longest by having students identify common objects for each classification
- o move towards symbols gradually -- from real things to drawings or pictures to symbols
- o provide the student with a visible means, such as a graph, to observe progress in interpreting troublesome symbols
- o children's formal understanding of written symbolism generally lags behing their informal understanding: this is "the gap" between what the student can do and what the student does do when asked to write or read
- o children often possess sound informal techniques which lead to correct answers, and these often can be discovered by showing a connection between the symbol and a specific instance or concrete thing

(23) SHOW CHILDREN HOW SCHOOLWORK RELATES TO THEIR OWN LIFE.

- o change artificial to personally relevant
- o students should see that the aim of learning is not to always get the right answer, please the teacher, or to acquire points or high grades, but to have the learning make sense
- o retention is increased when students paraphrase information rather than simply recite, since this requires that students translate the material into their own vocabularies
- o let the student state his or her understanding of a concept in their own language, even if the result is different from "the terminology of textbooks"
- o children's learning tends to be self-directed:
  - children practice on their own
  - children attempt moderately difficult problems when they could simply repeat what is easy
  - children choose to be interested in certain topics
  - children decide to practice at certain times
  - children attempt to expand their knowledge
  - children request information when they think it is needed
- o at risk students tend to see school assignments as isolated from everyday "real" concerns
- o allow students to use their interests in class by giving a report or doing a self-chosen assignment related to them
- o teach a topic through an interest area, for example anatomy by a child's labeling of a favorite animal
- o when possible encourage students to verbalize their opinions
- o round robins where children tell about something that gives them a good feeling
- o students create their own "personal time line", including future aspirations
- o student conducts a "special assignment" in an area of expressed interest, perhaps by exploring something at home

- o give relevant choices, acceptable alternatives
- o children usually know more about things they are interested in, and so use of interest-area materials facilitates comprehension
- o allow students to select supplementary or recreational assignments which are suited to their interests
- o monitor that the curriculum provides for special interest activities that are related to learning objectives
- o mathematics learning, in particular, benefits from teaching for understanding, and this, in turn, benefits from teaching which involves students' interests:
    - engage students' thinking through posing a problem, setting up a situation, or asking a question
    - understanding is achieved through direct, personal experiences; students need to "see" the concept or procedure in action
    - understanding comes through having available a number of opportunities to explore the mathematical idea
    - all students will not get the same thing out of the same experience; provision of alternative experiences allows all students to understand the learning
    - considerable understanding comes from working together in small groups, sharing viewpoints and asking questions
    - understanding comes through persistence in solving problems; mistakes and confusion should be considered a natural part of learning
    - putting thoughts into words -- out loud -- greatly aides understanding, and helps to reveal misunderstandings

(24) BASIC SKILLS NEED TO BE OVERLEARNED.

- o once information is first learned, continued practice over regular intervals can strengthen retention (example: reviewing a set of learned facts for five minutes daily over a period of two weeks and then once a week over the next month)
- o to develop effective skills children require repetitive experience and can get it in any environment
- o use a systematic flashcard procedure
- o periodic review using mini-probes (samples of learning)
- o gear instruction to underlying concepts and procedures the child knows: build on the child's strengths
- o select practice activities that provide immediate feedback on corrections
- o distributed practice -- practice time spread over several short periods -- is best for maintaining mastery
- o teach basic facts (decoding, spelling, math facts) through application exercises or practical experiences
- o students need training in using skills in situations other than where originally learned
- o encourage the student to verbalize out loud and then silently to himself the learning, or what is to be learned
- o systematic maintenance of student learning can occur through embedding review in the context of new topics
- o gradually phase in new skills while the old ones are being mastered
- o a check for overlearning could be a rapid, smooth, and confident student response
- o the benefits of overlearning support the value of repeating and rehearsing basic material (like facts, concepts, skills, procedures, technical vocabulary) that will be used in subsequent learning
- o emphasize that time given to review is an important and necessary part of learning
- o when prior learning is automatic, space is freed in working memory for comprehension, application, and problem solving

(25) CHOOSE CURRICULUM MATERIALS WHICH HAVE CHARACTERISTICS THAT FACILITATE LEARNING (Cawley, 1984).

- o advanced organizer: previews and introductions give the learner a framework for what is to follow
- o clarity: clear presentations of vocabulary, concepts, and examples
- o cueing: pointers such as headings, margin notes, or contrasting typeface cue what is important and aide memory
- o diagnostic tests: assessment of strength and weakness in the skill area provides the basis for individualized instruction
- o enthusiasm: excitement about the topic is conveyed through a personalized writing style, emotionally-charged words, and contemporary phrasing
- o examples: facts, instances, or diagrams illustrate a more general concept or principle
- o feedback: procedures for providing information on the accuracy of performance in practicing new knowledge and skills
- o glossary: a list of unfamiliar and technical terms is presented so that the learner can focus attention on them
- o independence level: inclusion of instructional experiences appropriate for the learner's level of independent working
- o inserted questions: placement of questions before, in, or after a message helps the learner engage in active reading, reviewing, or listening
- o manipulatives: objects or activities used to relate classroom teaching to real life
- o models: descriptions or analogies used to help the learner visualize something that cannot be directly observed
- o objectives: explicit statements of an instructional unit's goals so that the learner knows before hand what knowledge and skills need to be mastered
- o outline: a summary of the main ideas and their sequence
- o perceived purpose: presentation to the learner of reasons for studying a particular lesson

- o practice: opportunities for the learner to rehearse the knowledge or skills
- o prerequisites: explicit statements of the knowledge and skills needed by the learner in order to profit from the instructional experience
- o recycling: opportunity for restudy when mastery is lacking
- o reinforcers: provision of an extrinsic reward to the learner upon successful completion of a learning experience
- o self-check: an assessment method enabling the learner to check level of mastery
- o variety: several different instructional strategies, formats, and media used to convey what is to be learned

Source (cited in Cawley, 1984, p. 236):

Gall, M. D. (1981). Handbook for evaluating and selecting curriculum materials. New York: Allyn and Bacon.

(26) PARENTS CAN BE AN INSTRUCTIONAL RESOURCE.

- o significant learning can occur when parents spend 5-15 minutes a day on a focused academic task
- o parent's willingness to participate in tutoring, the quality of the tutoring, and student task focus during tutoring are significantly increased when parents are given clear, explicit, step-wise guidelines for tutoring an assignment
- o after parents agree to assist with their child's school work, they need both ongoing and short-term follow up, as well as opportunity for consultation
- o parent procedures for correcting student errors should be worded positively
- o parent's tutoring sessions work best with short, direct assignments that the student can do
- o parents can greatly benefit from a training which prepares them for tutoring by imparting basic principles as well as specific techniques
- o completing assignments given as homework can be best facilitated by parents when the assignments are:
  - clear and require skills and knowledge that are within the range of students' capabilities
  - challenging and stimulating
  - incorporate students' interests
  - important because they are directly relevant to the lesson or unit being conducted in the classroom
  - commented on, orally and in writing, when they are completed
  - preceded by briefing parents on the system of handling homework
  - ones students are held accountable for completing
  - possible to complete within the reality of the student's home setting
  - incorporate success, success, success

- reading to, and being read to, as well as discussing the reading, is always recommended as a parent tutor "buffer assignment", to wedge between more specific tasks

- a few practical applications problems to do at home each day -- fun and motivating ones -- may be the best way for some students to practice basic skills learned in class

- a critical attribute of remedial instruction is increased opportunity to learn, and parent tutoring provides this add-on time

- parent tutoring materials must be inexpensive and easy to implement, and ideally would be "self-contained" (e.g., a tutoring packet for the assignment, containing all needed materials)

(27) CHECKLIST FOR THE SELECTION OF ADJUSTMENTS (Holowock, 1989).

- o does the adjustment allow the student to participate in the critical activity easily and effortlessly?
- o does the adjustment use the student's strengths in basic skill areas (what's done well) and compensate for those areas in which few behaviors are exhibited (what's not done well)?
- o does the adjustment allow the pupil to be independent as possible?
- o is the adjustment acceptable to and supported by significant others (peers, employers)?
- o is the adjustment easier to use than normal methods?
- o is the adjustment as inconspicuous as possible?
- o is the adjustment applicable in a number of activities?
- o is the adjustment easily maintained?
- o is the time cost for the development of the adjustment reasonable given the expected benefits?

(28) THE "CLASSIC" CONSIDERATIONS IN ADJUSTING CURRICULUM AND INSTRUCTION WILL CONTINUE TO ASSIST AT RISK STUDENTS.

- o frequent practice and review
- o more repetition
- o less abstract, more concrete
- o less difficult, easier
- o small steps
- o model and demonstrate
- o visual aides and manipulatives
- o multi-modal (see, hear, do, touch)
- o memory aides
- o fewer problems
- o personalized, interesting
- o lots of success

These basics are compatible with the contemporary approaches to teaching reading, writing, mathematics, and other curriculum areas that stress understanding vs memorizing facts and rules, and problem solving of real-world activities vs repeated practice of basic foundation skills.

Indeed, it is crucial to adapt and modify in order to address the different learning needs and styles of all students. In short, the "classic" considerations are not synonymous with "skill", "simple", or "unchallenging" teaching or curriculum. They are only ways to adjust, temporarily, so that the essential learning of the lesson is grasped by all students.

ALTERED REPRESENTATIONS

Given the diversity and range of aptitude and skills found in most American classrooms, the question is not whether to adjust, but how it can best be done. Curriculum materials, textbooks in particular, often need "refining", since "core textbooks continue to be offered in complex, written formats with limited teaching and learning strategies presented" (Winget, 1991, p.1).

For at risk students standard curriculum materials often are (perceived to be) barriers to the essential learnings being taught. What is necessary is not to change these fundamental learnings, those that all students are expected to master (i.e., the "core curriculum"), but "a change in the format and an expansion of the forms that the materials come in" (Winget, p. 14).

This is the idea termed altered representations by Guerin (1991). He proposed that "teaching" versus "presenting" involves systematically altering how concepts, rules, and skills are presented to those learners who do not initially understand. The content or knowledge being taught remains the same.

This "means that the teacher provides examples with enough elaboration and variation that all students within a classroom understand the information before the teacher moves to another step in the instruction" (Guerin, p. 15).

Traditionally this altered representations concept has been termed "aptitude-treatment interaction" (ATI). "Aptitude" has been defined as personal characteristics that determine what is learned, how much is learned, and how rapidly it is learned (Cronbach, 1967).

ATI proposes that teaching differently to students who have certain learning characteristics or learning styles -- through adapting instruction or modifying curriculum -- will bring about better learning. Cronbach (1967) and Glaser (1977) have listed the following basic adjustments to account for individual student differences:

(1) Adjust within a predetermined program. This is the "core curriculum" idea which proposes that certain common learnings should be attained by all students, and that we should train all students to mastery on these central learnings.

The problem is, of course, that not all students learn at the same rate, and rate of learning varies from one task to another. Consequently, there is a necessity to find the time to make sure that all students, independent of how long it takes some of

them, learn the "core" knowledge and skills. The question is: How to adjust?

(2) Adjust by matching goals to the individual. This is the "tracking" idea which proposes that courses or areas of learning need to be layered from easier to average difficulty to advanced. The problem with this approach, of course, is that any content area (say, algebra) can be taught by a considerable variety of methods. Consequently, it may be better to use a variety of techniques and materials to teach a content area and avoid the bother of tracking. The question is: How to adjust?

(3) Adjust by erasing individual differences. This is the rationale behind remedial and compensatory education. It may be termed "hole patching", and basically is conducted by breaking the subject matter into subskills, classifying a student's errors, and providing special or extra instruction.

The problem with this approach, of course, is that a student may have many "holes" in learning, and each requires a distinct remedial effort. Consequently, there is a considerable burden of time plus individualized materials plus adapted instruction. The question is: How to adjust?

(4) Adjust by altering the instructional method. This is usually accomplished informally. A teacher turns away one pupil who asks for help, saying, "You can find the answer by yourself", and walks across the room to help another student who easily becomes frustrated.

The problem with this approach, of course, is in accurately matching instruction to student "type", since there are numerous varieties of student "type", and no scientifically sound method available for matching student-type with teaching-type. The question is: How to adjust?

These four different adjustment proposals are all, really, aptitude-treatment interactions. All need to utilize altered representations to bring about their desirable goals. All need to put details into the answer to the question, How to adjust?

"A hodge-podge of methods and theories has emerged out of the pragmatic quest to deal adequately with the obvious range of individual pupil characteristics with which teachers are confronted" (Gordon, et al., 1985, p. 47), that is, how to specifically create altered representations.

In fact, it has proved exceedingly difficult to identify stable and reliable individual differences among students, not to mention practical methods for adjusting for these "subgroups". These would include such concepts as self-esteem, preferred modality, intrinsic motivation, or attitude toward learning.

These and similar "aptitude" constructs are not sufficiently well understood to suggest how effective instruction should be designed in detail, or how curriculum can best be modified: How altered representations can best be constructed.

It must wait for future research and experience to bring this about. At present, several concerns show that ATI's are far more complex than previously believed:

* methods of measuring traits are relatively unsophisticated (e.g., questionaires)

* educational content areas (e.g., reading, algebra) are complex and preclude easy description

* student behavior has multiple causes

* life in classrooms is involved and multifacited

Laws of general applicability have been elusive. Gordon et al. (1985) have proposed that this conclusion derives chiefly from our inadequate conception of the learning person ... we have limited psychological insights which would provide us with knowledge about important aspects of teaching and how these interact with learner traits or characteristics.

Learners bring many unique characteristics to bear on learning situations, and do so in dynamic and complex ways: socioeconomic status, gender and social role, ethnicity and family culture, motivational state, temperament, and reactivity to surrounding environmental forces. Consequently, it is no easy feat to show a 1:1 relationship between a student trait and adjusted teaching or curriculum (altered representations).

Given this state of affairs, the method advocated by Glaser (1977) for dealing with student diversity is recommended:

(1) Remedial services based on detailed assessments of student learning needs in the relevant content areas.

(2) An adaptation/modification orientation whereby teaching and curriculum are accommodated to individual differences.

The first component needs to be addressed through curriculum based assessment. The second may be addressed through <u>generic principles and plans</u>, which can be delivered by means of the <u>art of teaching</u>: Good judgment, wisdom informed by experience, and the presence of foundation knowledge ... are necessary since "there are no simple, generalizable methods to achieve optimal learning in a diverse group of children" (Good & Stipek, 1983).

GENERIC PRINCIPLES AND PLANS

In adapting instruction and modifying curriculum for at risk learners, four methods are available. In the list, a specific topic in instruction or curriculum is stated, and a variety of potential solutions are appended. This is the "cookbook" method: Find the topic, look up what to do.

The plus to the list is that the reader can easily review the topic headings and quickly scan the appended recommendations. This is easy and convenient. The minus is that there are literally hundreds of issues confronting educators, under a wide variety of circumstances. It is too far-reaching a task to list all of these and their prescriptions. As well, lists often are not well organized, making it challenging to find those solutions suitable for a particular circumstance.

In the individual consideration, specific characteristics or traits of the student are suggested, and adjustments to instruction and curriculum are made according to beliefs about how a student of the suggested kind learns best.

The plus to the individual consideration is the practical value of the orientation towards individual student differences, an orientation so necessary when confronted with a range of aptitudes and skills, as is common in most classroom groups. The minus for this aptitude-treatment interaction approach is the lack of a sound, scientific knowledge base for how best to teach students described as exhibiting certain learning traits or styles.

In the generic consideration, general principles in adjusting curriculum and instruction are stated. These serve as reference or guide points. The plus is that a relatively small number of these ideas, collated as "best practice" from the available research, can serve as a practical checklist to be utilized in any given circumstance. The minus is that no assistance is given for systematically choosing interventions or options.

In the plan, such a systematic approach is given. There is no one best way to do this, however, and an educator may wish to create a hybrid plan by choosing components from several others. Examples of plans, or "formats", are given in the next section.

The plus is the availability of a procedure or method to help decision making, and avoidance of random or idiosyncratic choice of intervention. The minus is that the plan is only an outline of procedure, empty of any practical advice.

All in all, then, the best approach seems to be a combination of generic principles and plans. This two-part approach can best answer the question posed earlier: How to adjust?

However, as Englert (1984) has pointed out, educators will have to examine this recommendation in relation to their own unique style, setting, and student population. They must also "learn to ask questions about their own practices in order to self-monitor and self-regulate their own behavior ... because although certain strategies work effectively in some contexts, they are irrelevant to others" (p. 1).

PLANS FOR ADAPTING AND MODIFYING

FORMAT A

Hoover: A Five-Step Process

The first approach is that developed by John Hoover (1990). He viewed curriculum modification broadly as an interaction between four "curriculum" elements:

(1) content

(2) instructional strategies

(3) instructional settings

(4) student behaviors

These elements operate in interrelated ways in the classroom, as for example:

content	student behavior
(new topic)	(attentiveness)
instructional setting	instructional strategies
(outdoors)	(talk louder)
student behavior	instructional setting
(agitated)	(quiet corner)

Hoover promoted modification decisions as a series of steps:

Step I: Determine the need for curriculum modifications.

Step II: Identify the elements requiring modification.

Step III: Select teaching and behavior management techniques.

Step IV: Implement the curriculum modifications, namely:

- modify content
- modify instructional strategies
- modify instructional settings
- modify student behaviors

Step V: Monitor progress with the adjustments.

As student and curricular needs become dissimilar, the need to modify the curriculum increases. Once a need is identified, inquiry should be made about which of the four elements requires modification. This is accomplished through asking relevant questions, such as:

content: does the student possess a sufficient reading level? does the student possess appropriate prior experiences? is the content too abstract?

instructional strategy: is the student motivated to learn through the strategy? is the strategy effectively matched with the content?

instructional setting: does the setting facilitate active participation? is the student able to complete tasks in the setting?

student behavior: is time on task limited? is the student sufficiently organized for the assignment?

Students frequently experience problems related to two or more of the elements simultaneously. Hence it is important to guard against modifying one element only, in such instances.

Once the elements to be modified are decided, techniques are selected which are relevant to the elements. Techniques of intervention abound, and some examples are:

- o learning centers
- o provide choices
- o role playing
- o peer tutoring
- o time-out
- o opportunities for success
- o simplify reading level
- o clearer explanations
- o student accountability
- o prompting
- o positive note home
- o behavior contract

Once interventions are selected they are implemented and evaluated. Key generalizations for implementations are:

modifying content: simplify the reading level; adjust the pace at which the content is acquired; shorten the assignment

adapting instructional strategies: employ a new or different strategy; modify the existing strategy; eliminate the strategy

modifying instructional settings: when effective, should show students that they are expected to learn, manage their own

behavior, and minimize their risk for failure

modifying student behavior: adjustments to the other curriculum elements must be structured in such a way so they contribute to student self-management of behavior

FORMAT B

Cohen: A 3X3 Table

	Content	Environment	Instruction
Teacher-Mediated	1	2	3
Peer-Mediated	4	5	6
Self-Mediated	7	8	9

In an introduction to a series of articles on the topic of curriculum modification, Cohen (1990) presented a useful 3X3 table as a visual aide for teacher decision making. In this approach the teacher is the key: A person who has "first-hand knowledge of what a student is able to learn and what he or she needs to know for immediate future success" (p. 392).

The six "interrelated components of a curriculum program" each can be modified, as needs be, for a learner experiencing difficulty with the standard approach. This allows maintaining a school's basic educational goals for all learners. Some examples of this plan are:

1. Teacher divides the lesson into thirds and intersperses art and physical activities.
2. Teacher seats the student next to a "study buddy".
3. Teacher asks the class to signal "thumbs up" if they understand.
4. Peer loans the student lecture notes.
5. Peer invites the student home for a homework session.
6. Peer tutor graphs the student's reading error rate.
7. Student reads a library book for extra credit.
8. Student moves to a quieter part of the room.
9. Student uses a systematic flash card method to study for a spelling test.

FORMAT C

Cawley: Interactive Units

John Cawley (1984, 1990) has presented a useful format for adapting instruction for at risk learners. He proposed that instructional adaptations are useful because they can be done with relatively little preparation and without the need for extensive modification of materials. Cawley has focused on the curricular area of mathematics for his method, and has devised a plan termed Interactive Units (IU) to describe the procedure.

The IU does not seek "preferred modalities" (i.e., does not describe students as visual or auditory learners). It does provide for:

(a) systematic variation in the manner of presentation

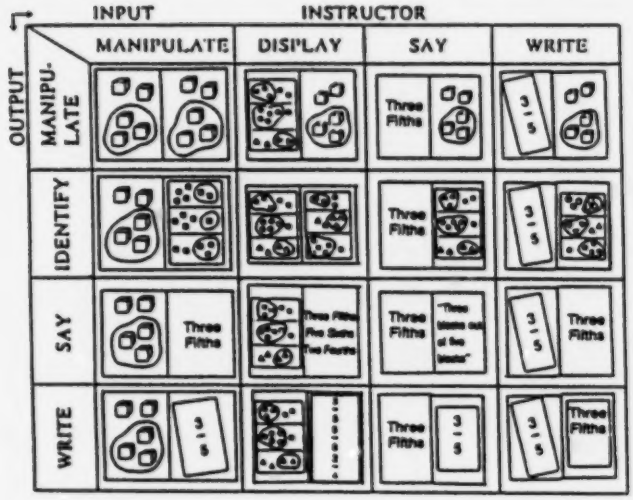
(b) systematic variation of instructional materials

The IU allows instruction to be adapted via a "change in the manner in which mathematics principles and concepts are represented to the learner" in order to:

- o partial out the effects of one "disability" (e.g., reading) on another (e.g., word problems)
- o present a skill or concept over a longer period of time than is possible with the original materials
- o represent skills or concepts differently
- o increase or decrease the number of repetitions for a given set of items
- o provide varying means of interacting with learners, or of re-teaching

The IU gives 16 combinations of teacher-student-curriculum interactions by means of which almost all mathematics concepts can be represented. A textbook page could be reformatted to yield up to 10 alternative representations of the page's content. These instructional options could be made into activity sheets or reproducibles.

Examples of Interactive Units



Source: Cawley & Parmar (1990)

TEACHER – INPUT

LEARNER – OUTPUT	MANIPULATE (M)	DISPLAY (D)	SAY (S)	WRITE (W)
MANIPULATE (M)	TEACHER MANIPULATES LEARNER MANIPULATES	TEACHER DISPLAYS LEARNER MANIPULATES	TEACHER SAYS LEARNER MANIPULATES	TEACHER WRITES LEARNER MANIPULATES
IDENTIFY (I)	TEACHER MANIPULATES LEARNER IDENTIFIES	TEACHER DISPLAYS LEARNER IDENTIFIES	TEACHER SAYS LEARNER IDENTIFIES	TEACHER WRITES LEARNER IDENTIFIES
SAY (S)	TEACHER MANIPULATES LEARNER SAYS	TEACHER DISPLAYS LEARNER SAYS	TEACHER SAYS LEARNER SAYS	TEACHER WRITES LEARNER SAYS
WRITE (W)	TEACHER MANIPULATES LEARNER WRITES	TEACHER DISPLAYS LEARNER WRITES	TEACHER SAYS LEARNER WRITES	TEACHER WRITES LEARNER WRITES

Manipulate (M)—Manipulation of objects—piling, arranging, moving

Display (D) (Teacher input only) Presentation of displays—pictures, arrangements of materials

Say—Oral discussion

Write—Written materials—letters, numerals, words, signs of operation, and the marking of these types of material

Identify (Learner output only) Selection from multiple choices of nonwritten materials (pictures, objects)

Source: Cawley (1989)

FORMAT D

Lambie: Three Basic Topics

Lambie (1980, 1986) advocated a systematic approach for changing (a) the actual curriculum materials or products, (b) the manner of delivering instruction, or (c) the nature or scope of the assignment. This approach requires the following basic guidelines:

(1) Use the change process only when there is a mismatch between the learner and the material, instruction, or assignment. First rule out poor learning due to:

- vision or hearing problems
- mismatches between the student's level of functioning and the grade level placement
- environmental factors such as lighting, noise level, or distractions
- contingency or arrangement between the desired response and the consequence (example: student works slowly at a math assignment in order to avoid the next, a "boring" reading task)

(2) Keep the changes simple. Focus on the simplest change possible that is still effective and efficient.

(3) Confirm mismatches by evaluating the changes made: Successful learning should occur.

(4) Minimize teacher time in making changes. If more than one possible solutions appear as equally good, choose that change that requires the least time.

(5) Keep combinations consistent: Be sure supplementary material is compatible with the basic approach (example: sight word approach in both).

(6) Know the strengths and weaknesses of the instructional material. This allows predicting ahead of time what problems might occur (example: worksheets which typically have confusing directions).

(7) Know the pupil's strengths and weaknesses. This allows easier identification of mismatches (example: student with difficulty in oral spelling can write the response).

Lambie recommended a questioning or "empirical" approach towards the change process. In this format the teacher poses a variety of

questions as possible causes of mismatches between the learner and materials, instruction, or assignments. This questioning process determines which of the three mismatches are in play. When this is decided, the teacher "systematically varies the change" until the mismatch is corrected. Lambie's method can best be carried out as a series of steps:

Step One: State the problem as an observation.

Step Two: Pose a question as a possible solution. If more than one question seems reasonable, choose first that question which gives the simplest, most direct explanation, and would take the least time to follow-up.

Step Three: Based on this question, choose one of three likely mismatches: With materials, with instruction, with the assignment.

Step Four: Devise changes in this area, or areas, if more than one of the three seems likely to be involved.

Step Five: Implement the changes, and if successful learning does not take place, try other interventions, or pose another question and proceed from step three.

The real key to this process is the question posed, since it will lead to choosing (a) the most likely of the three areas to have caused the mismatch, and (b) the most practical intervention to change the mismatch. The three examples given below show this process at work.

Example Number One

Observation: The student does not finish independent math assignments.

Best question #1: What if the student is overwhelmed by the amount of work assigned?

Material interventions: Fold the page like an accordion and the student works only one fold at a time; cut the page of problems into fourths; color code problems and the student works one color at a time.

Best question #2: What if the student is not motivated to complete independent work?

Assignment interventions: Allow the student to skip work where he or she demonstrates proficiency; provide opportunity for enrichment projects; give reinforcement for completing the activity within a certain time frame.

Best question #3: What if the student's learning style is to work accurately, but very slowly?

Assignment interventions: The student does only odd or even problems; the student completes only a sample of each problem, those that are starred; assign half of the problems to be completed in class, and half as homework.

Instruction intervention: Check progress and prompt the student frequently.

Best question #4: What if the student is a busybody?

Instructional interventions: Require the student to use a study carrel for independent work; seat the student in front of the class; complement peers who are working and encourage them to ignore the student; tape a square around the student's desk and apply negative consequences for leaving the space without permission.

Best question #5: Does the student daydream?

Material interventions: Use a timer on the desk to raise time consciousness; alternate interesting and uninteresting tasks.

Instructional interventions: Provide frequent checks by stopping at the student's desk regularly; help the student analyze longer assignments to predict how long each part will take.

Example Number Two

Observation: The student's memory seems adequate, but the student has problems following written directions.

Best question: Does the student confuse or gloss over multi-step written directions?

Material interventions: When worksheets have paragraphs containing multiple directions, use colored dots or numbers to separate them; underline each direction with a different color.

Instruction interventions: Tape-record the directions with added steps for students who require more detail; assign a peer tutor or "study buddy" to coach the student through the steps.

Example Number Three

Observation: The student makes numerous errors in independent work.

Best question: What if the student gets insufficient feedback to complete worksheets correctly?

Material interventions: Provide a checking center in the room with answer keys, teacher guides, and tape recordings of the correct answers; the student covers the correct answers, pre-written in yellow, with a red acetate sheet, which neutralizes them, and then moves this sheet down the answer page in order to self-check the actual written response, which is written on a separate page.

Assignment intervention: Tell the student to skip difficult problems, and address these individually at a later time.

In addition to the "systematic approach" for developing practical interventions for at risk students, as outlined above, Lambie adds these important considerations:

1. The use of one intervention in isolation may not be enough.

2. Interventions may have to be used in combinations.

3. Try an intervention consistently before concluding that it will not work.

4. Vary the interventions so that the student does not get bored too easily.

5. Students who need special interventions need lots of encouragement and praise for steps in the right direction.

FORMAT E

Cheney: An Underlying Organizational Framework

Cheney (1989) has observed that while "there are large numbers of students in school who, for a variety of reasons, are not learning at expected levels, the systematic adaptation of instructional materials can be a confusing and sometimes random process" (p. 25).

Also, while lists of specific suggestions, or prescriptions, are available, sifting through these to find those that are relevant to a particular situation can be a time-consuming affair.

A better approach, Cheney recommends, is an "underlying organizational framework". Her orientation towards adjusting in order to meet the needs of problem learners is to compare the characteristics of (a) the materials, (b) the teaching technique, and (c) the learner, in three major areas:

1. The achievement level of the student and the instructional level of the material. Sample solutions for the achievement level mismatch are:

   - o rewrite or reorganize the material at a simpler level
   - o locate lower level supplementary materials on the same topic
   - o use summaries or advanced organizers of the material to be covered
   - o create vocabulary lists based on the learning topic
   - o visually highlight key words or phrases

2. The learning characteristics of the student and the modes of presentation or response required by the material or instructional technique. Sample solutions for the learning characteristics mismatch are:

   - o some students like to have a choice of the order of their assignments
   - o change the nature of the assignment from one that requires reading and a written response to one that requires listening with an oral response
   - o allow the student to demonstrate understanding through group projects or oral reports
   - o allow the student to complete smaller amounts of material in a given time

- o have the student circle or underline the correct responses rather than write them
- o fasten the student's materials to the desk to help with coordination problems
- o present information using graphs, illustrations, or diagrams
- o incorporate rhyming, rhythm, music, or movement into lessons
- o lessen distractions from other sources within the learning environment

3. The motivational characteristics of the student and the motivational characteristics of the material. Sample solutions for the motivational characteristics mismatch are:

- o allow students to set their own goals and to graph their own progress
- o use timed tests and encourage students to "beat the clock"
- o contract so a given amount of work at an agreed degree of accuracy would earn the student a desired activity or privilege
- o allow students to choose where to work, what tools to use, what to do first, and who to sit by -- so long as academic work is being completed
- o incorporate drill-and-practice into a game format
- o provide immediate feedback as to the correctness of work through close monitoring or self-correcting materials
- o incorporate humor into the materials or presentation (puns, jokes, cartoons)
- o allow extra credit for bonus work
- o camouflage materials that may be at a lower instructional level (folders, covers)
- o use high-status materials for instructional activities (magazines, catalogues, newspapers, checkbooks, driver's manuals)
- o positive notes to parents, certificates of completion
- o allow students to earn points or tokens in exchange for a valued activity or privilege

Cheney adds to her "underlying organizational framework" a warning that in attempting to change methods and materials, for example by lowering the reading level, the concepts and ideas presented to the student may be over-simplified.

She cautions avoiding the assumption that because a student reads or writes or calculates poorly he or she is incapable of benefiting from exposure to the thought-provoking ideas of science, history, or literature. It would be important to allow at risk students access to this high-status and high-interest material through the "solutions to the mismatch" process.

FORMAT F

Scourfield: T.T.M.M.E.

Scourfield (1986) has pointed out that since any particular learning problem will not always respond to any particular curriculum or instruction adjustment, an orderly approach to deciding what to vary is required.

Her solution is to collect information about the problem and on the basis of this to select the most likely of the following variables to alter: Task, Time, Method, Material, Evaluation. This makes for a useful mnemonic. Sample interventions are:

Task. This variable has two parts: What content are students being asked to learn? How are students being required to respond?

(a) Content: Assign smaller units of work at a time; review prerequisites frequently; repeat the assignments; carefully define key vocabulary; use utilitarian materials such as menus or television schedules.

(b) Response: Writing; typing; speaking; painting; drawing; dictating; acting.

Time. When students have more time to practice what they are being taught learning is improved: Assign the student to more than one reading group; peer or cross age tutor; parent volunteer 10 minutes before school; Saturday school; work packets for vacations.

Method. A variety of teaching strategies are available: More frequent objective feedback; emphasize the purpose for the lesson; learning contracts; positive management methods like logical consequences; increase opportunity to respond by using oral group responses; prompts or hints until the student understands; reduce classroom distractions; talking plus visual aide; increase discussion time for "deep processing".

Material. Alter the materials the students actually use: Felt-tip pens instead of a pencil; large print books; books with audio-tapes for following along; tilted writing surface; paper with wide, dark lines; interest area magazines instead of basal books.

Evaluation. Alternatives to standard grading and testing: Rate as an index of proficiency (e.g., 8 of 10 correct is 100%); average or "handicap" method (e.g., a score higher than the average might be an A, a lower than average score a D).

FORMAT G

Blankenship: Secondary School Considerations

Colleen Blankenship (1985) has outlined a format for adjustment that considered especially high school-aged students. Colleen proposed that secondary school teaching is typically based on a single text and is commonly directed to the class as a whole. Following this is a lecture/discussion period where students are given individual assignments to complete.

Many students, particularly those at risk, do not always achieve well under this "common practice". Here are some reasons:

1. Reliance on a single text, as is common, assumes that it's content is appropriate for all students' needs.

2. Concepts and skills are not always presented in a logical and sequential manner.

3. Texts may have large gaps of pre- or sub-skills between presenting one skill or another.

4. Sufficient examples to ensure mastery by all students may not be provided.

5. Adequate review lessons can be lacking, and not sufficient to facilitate maintenance of newly acquired material.

6. Each student may not possess the reading skills to process the text.

7. Each student may not possess the necessary prerequisite concepts and skills.

8. All students may not possess crucial behavioral skills allowing them to efficiently (a) attend to demonstrations, (b) participate in class discussions, (c) work independently, complete assignments and submit them on time.

When any of these considerations may be at play, it is necessary to individualize instruction. Colleen proposed five aspects of teaching that could be adjusted to allow the difficult to teach student more success.

(1) Modify the content of the standard text. There are three basic options for modifying the content:

(a) supplement the information presented in the standard text

(b) adapt the information presented in the standard text

(c) substitute other materials in place of the standard text

The type of adjustment needed depends on the needs of the individual student. Examples are:

Student Needs	Modification
lacks mastery of prerequisite skills	supplement by securing additional materials
text provides insufficient amount of practice	supplement with additional exercises
following written directions	adapt by rewriting explanations and directions
looses track with long, detailed directions	adapt by deleting unnecessary words, substitute shorter words, underline important terms
slow, laborious decoding of paragraphs	adapt by presenting information in tables
learning content area technical vocabulary	adapt by underlining important terms keyed to short definitions at bottom of page
overwhelmed by a large number of problems	adapt by reducing the number of problems per page; use extra time for applied examples
poor sequencing skills	substitute for the text prose description exercises to be completed using a step-by-step approach
limited reading comprehension	substitute parallel alternate text with a reduced reading level

(2) Adjust the instructional pace or sequence. This involves altering the frequency with which new concepts and skills are presented:

(a) pace: presenting the same information at a slower

rate; try to achieve a high percentage of consistent mastery of the topics covered in the allotted time

(b) sequence: this is necessary when students lack prerequisite skills, or have difficulty generalizing from one skill to another; sequence modifications involve breaking tasks down into smaller steps by identifying:

- prerequisite behavior the student must have to do the task
- the series of steps in the task
- where in the sequence the student experiences difficulty

example: the text illustrates how to round decimals to the nearest tenth, but fails to provide a detailed explanation of how to round to the nearest hundredth or thousandth:

- check that the student can identify the hundredth's place
- reiterate the rules for rounding
- point out the similarity between rounding to tenths and hundredths
- repeat this for rounding to the nearest thousandth
- last, present the student with several problems requiring rounding to all three places

(3) Change the instructional delivery system. During lecture/discussion some students may not be actively involved. To help bring about greater "time on task" consider these options:

- o peer tutoring
- o programmed, self-paced workbooks
- o small groups for sharing of study skills
- o computer aided instruction
- o one-to-one instruction in several short time blocks

(4) Alter the demands of the task. This is what is done without directly modifying the materials, for example:

- o for students past the eighth grade who are not proficient in basic math facts, allow a calculator to be used
- o provide extra assistance through "partners", chosen or assigned groups of two students
- o supplementary references, with reduced reading level, for science
- o contract with parents to preview each assignment before it is presented in class
- o study skills training as an option during study hall

(5) Vary teaching options. Colleen Blankenship contends that "there aren't really any special techniques or magic formulas to improve student performance ... basically all that is needed are general instructional strategies". These are:

- o verbal instruction
- o demonstration
- o modeling
- o discrimination training
- o drill and practice
- o prompts and cues
- o feedback
- o reinforcement
- o contingencies for errors
- o fading

"These very simple strategies have been shown to be effective in improving the performance of students with learning problems in a number of academic subjects. Although the techniques are straightforward, the trick comes in knowing when to use a particular type of strategy" (Blankenship, 1985, p. 74).

None of these strategies requires very much time to carry out, nor are expensive materials necessary. Indeed, they can be effectively used with curriculum materials available in the classroom.

FORMAT H

Burnette: Modifying Materials for Mainstreamed Students

In the early 1980's the U. S. Department of Education underwrote several projects designed to modify some widely used textbooks in order to make them more appropriate for mainstreamed special education students. The purpose was to meet three goals: (a) to teach the basic learning objectives of the text, (b) to all students, (c) in the regular classroom.

Burnette (1987) has described the needs assessment phase for modifying texts as consisting of three important steps:

Step 1: Develop a learner characteristics profile. This step is crucial as it highlights those skills that are difficult for students, so materials that rely on these (weak) skills can be avoided or modified. There are three types of relevant learner characteristics:

Type 1: Needs associated with developmental problems, for instance:

- o limited attention span
- o memory limitations
- o lowered self-esteem and motivation
- o language problems inhibiting vocabulary acquisition or reading skill development
- o weaknesses in quantitative skills or math
- o visual-motor or written expression difficulties
- o difficulty in organizing an approach to, and follow through with, an assignment

Type 2: Needs associated with a specific content area, as for example math:

- o counting or place value
- o addition
- o subtraction with regrouping
- o decimals
- o percentages

- o alignment of arithmetic problems on the page
- o applied problems, practical solutions

Type 3: Needs which are of greatest importance for a particular assignment, for example:

- o interpreting maps and globes
- o understanding time and chronology
- o using charts and graphs
- o working independently
- o oral language: skill at summarizing
- o giving directions
- o working quickly within time limits
- o estimating or predicting
- o location skills (dictionary, library)
- o taking good notes

Elaborate documentation of student learning needs is not necessary. In fact, an educator can scrutinize the characteristics of a student from the three perspectives and jot down the primary conclusions.

Step 2: Assess instructional needs. This could be in general as "teaching style", or more specific as "class time at a premium". Examples are:

- o prefers large group instruction
- o uses visual aides mainly for math
- o brisk pace
- o favors weekly quizzes
- o asks lots of questions
- o projects allowed for homework
- o organized and structured classroom
- o strong need to cover pre-selected material

- o favors oral vs written tests
- o likes diverging from the text
- o main focus is skills first as a foundation
- o each year keeps one innovation project going
- o cooperative learning only with some students

Step 3: Analyze the textbook. Identify characteristics of the text that likely make it too difficult for some students, as for example:

- o sophisticated vocabulary
- o difficult organization
- o not enough emphasis on review
- o dense or telescoped information
- o important concepts not highlighted
- o paragraphs contain a "swirl of detail"
- o facts vs understanding emphasis
- o vague directions for exercises
- o small type face
- o meager glossary
- o complex graphs and charts

Once these steps have been completed -- and a summary overview may be sufficient -- mismatches can be identified. There are several possibilities, and a charting, as illustrated on the following page, may be helpful in identifying the most likely of the three areas to adjust. This is marked by an asterisk. The goal is to align all three so that mismatches are eliminated. As a preface to the charting, a summary of the three steps is given:

Step 1: Develop a learner characteristics profile.

Step 2: Assess instructional needs.

Step 3: Analyze the textbook.

Charting

Learner Characteristic	Teacher Need	Textbook Characteristic
limited reading comprehension	students readily understand what is read	focus on facts, limited summaries*
poor memory	gives extra emphasis to repitition and mastery before moving on	low ratings for review exercises*
has difficulty learning in large groups	favors large group instruction*	high ratings for suggested small group projects
needs oral directions due to reading problems	instructs students to read directions in the workbook*	clear directions, with grade level vocabulary
handwriting borders on illegible*	allows writing and spelling deficiencies in favor of expression of ideas	accompanying workbook well-formatted, no extensive writing required
poorly organized for study*	structured presentations, orderly classroom	well organized and formatted

The charting allows a visual overview of the issues involved in a learning problem so that mismatches can be more easily identified. Quite often there will only be one area that most needs adjustment, although two or even all three may benefit from some alteration.

CONCLUSION

A practical orientation towards adjusting curriculum and instruction for at risk students has been presented. It is based on a list of fundamental, generic, or basic principles, plus, as a second component, plans to assist in choosing reasonable target areas for intervention. The generic principles and plans may be combined in numerous ways, allowing generous flexibility for the orientation.

An outlook geared towards accepting the necessity of adapting instruction and modifying curriculum is required, as educators do confront a wide range of diversity in student skills and aptitudes. Adjusting can bring about several benefits to student and teacher alike (Blankenship, 1985):

Benefits for the student

1. The pupil is presented with assignments of an appropriate level of difficulty.

2. Extra assistance or aides are available to compensate for deficient skils.

3. Instruction is geared to the student's rate of learning.

4. Academic tasks are presented using techniques that are particularly suited to the student's needs and abilities.

5. Frequent feedback is provided and positive consequences are arranged to reinforce improvements in academic performance.

6. Students begin to experience success, and with repeated successful experiences, students who may have previously had limited achievement motivation, come to view themselves as capable learners, and are eager to show what they can do.

7. Adapting instruction and modifying curriculum fosters the goal of all adjustments, to improve student self-control and independent problem solving.

Benefits to the teacher

8. Students have less reason to act out when they are given materials that are at an appropriate level and when they are actively involved in learning.

9. An adjustment orientation encourages educators to seek out and use all available resources, thus acquiring new or modified materials that can make teaching easier.

10. What a teacher does always makes a difference, and adjusting focuses a teacher's attention on positive changes that can be made to facilitate learning.

11. By adjusting and reinforcing improvements in performance, teachers establish a classroom environment that is conductive to learning.

12. By adapting instruction and modifying curriculum along the lines discussed in this report, educators can bring about dramatic changes in pupil performance and attitudes.

This report is intended to be a working document. Space is available throughout to take notes and make additions. This is necessary since effective interventions and useful ideas are generated each time the generic principles and plans are used for adjusting curriculum and instruction to better meet a unique student learning or behavior need.

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APPENDIX: CHECK AND RANK

When considering adapting instruction and modifying curriculum for at risk students, a method for easy review of the twenty-eight generic considerations may prove helpful. A systematic approach towards this goal is provided on the following pages.

In order to facilitate this goal for a student, and your circumstances, use the Check and Rank with these steps:

1. Scan the twenty-eight entries.

2. If an entry seems relevant for you, check on the left.

3. Next, rank those entries checked on a scale from 1 to 5: 1 = most important, 5 = least important. Rank on the right.

4. Choose the highest-ranked entries for further consideration; try to include these as components of your intervention strategy.

5. Combine these highest-ranked entries with one or more of the eight plans for adapting and modifying.

6. Implement your intervention, evaluate it's success, and adjust as necessary.

CHECK AND RANK

GENERIC CONSIDERATIONS IN ADAPTING INSTRUCTION AND MODIFYING CURRICULUM

Check Relevance		Rank Importance
____	1 know the student in an informal manner	____
____	2 examine error patterns	____
____	3 encourage individual learning styles	____
____	4 build a foundation of motivation	____
____	5 sequence skills	____
____	6 remediate according to the six basics: extra-early-careful-sound-rapid-motivated	____
____	7 vary response options	____
____	8 vary testing options	____
____	9 vary grading options	____
____	10 increase opportunity to learn and active involvement	____
____	11 use alternative activities	____
____	12 adjust expectations	____
____	13 utilize structured presentation tactics	____
____	14 involve study skills	____

CHECK AND RANK

GENERIC CONSIDERATIONS IN ADAPTING INSTRUCTION AND MODIFYING CURRICULUM

Check Relevance		Rank Importance
____	15 preview the lesson	____
____	16 group by interests and needs	____
____	17 plan details into small groups	____
____	18 emphasize positive and pro-active management	____
____	19 set "clarity" of instruction as a goal	____
____	20 balance basic and advanced skills	____
____	21 go beyond standardized tests	____
____	22 relate written symbols to prior knowledge	____
____	23 relate school work to the student's own life	____
____	24 over-teach basic skills	____
____	25 review standards for good curriculum materials	____
____	26 enlist parents as tutors	____
____	27 monitor the adjustment selection checklist	____
____	28 try the "classics" first	____